

FORM PTO-1390
(REV. 5-93)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

WK-186

U.S. APPLICATION NO. (if known, see 37 CFR 1.5)

09/744519

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)

International Application No

PCT/EP99/05283

International Filing Date

July 23, 1999

Priority Date Claimed

July 31, 1998

Title of Invention **DEVICE AND METHOD RESPECTIVELY FOR PROCESSING FLESH**

Applicant(s) for DO/EO/US **M. JURS et al (SEE ATTACHED)**

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☒ has been transmitted by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
 - b. ☐ have been transmitted by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
☐ A SECOND or SUBSEQUENT preliminary amendment.
14. ☐ A substitute specification.
15. ☐ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

[X] LIST OF INVENTORS' NAMES AND ADDRESSES.

[X] THIS APPLICATION IS BEING FILED WITHOUT AN EXECUTED DECLARATION, WHICH WILL BE FILED LATER.

Application No. (if known, see 37 CFR 1.5)

International Application No.

Attorney's Docket Number

09/744519

PCT/EP99/05283

WK-186

17. ☒ The following fees are submitted:Basic National Fee (37 CFR 1.492 (a)(1)-(5)):

Search Report has been prepared by the EPO or JPO \$860.00
 International preliminary examination fee paid to USPTO (37 CFR 1.482) \$690.00
 No international preliminary examination fee (37 CFR 1.482)
 but international search fee paid to USPTO (37 CFR 1.445 (A)(2)) \$710.00
 Neither international examination fee (37 CFR 1.482) nor
 international search fee (37 CFR 1.445(A)(2)) paid to USPTO \$1000.00
 International preliminary examination fee paid to USPTO (37 CFR 1.482)
 and all claims satisfied provisions of PCT Article 33(2) to (4) \$100.00

CALCULATIONS PTO USE ONLY

ENTER APPROPRIATE BASIC FEE AMOUNT = \$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30
 months from the earliest claimed priority date (37 CFR 1.492(e)). + \$ 0.00

Claims	Number Filed	Number Extra	Rate		
Total	15	-20 =	0	x \$18.00	\$ 0.00
Independent	1	- 3 =	0	x \$80.00	\$ 0.00
Multiple dependent claim(s) (if applicable)				+ \$270.00	\$ 0.00

TOTAL OF ABOVE CALCULATIONS = \$ 860.00

Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement
 must also be filed. (Note 37 CFR 1.9, 1.27, 1.28). \$ 0.00

SUBTOTAL = \$ 860.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30
 months from the earliest claimed priority date (37 CFR 1.492(f)). + \$ 0.00

TOTAL NATIONAL FEE = \$ 860.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be
 accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property. + \$ 0.00

TOTAL FEES ENCLOSED = \$ 860.00

Amount to be:

Refunded \$

Charged \$

- a. ☒ A check in the amount of \$ 860.00 to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. 50-1417 in the amount of \$ _____ to cover the above fees.
 A duplicate copy of this sheet is enclosed.
- c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any
 overpayment to Deposit Account No. 50-1417. A duplicate copy of this sheet is enclosed.

Note: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive
 (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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30,293

Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

M. JURIS et al

Serial No.

Filed: January 25, 2001

For: DEVICE AND METHOD RESPECTIVELY
FOR PROCESSING FLESH

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified patent application as follows.

IN THE CLAIMS

Please amend claims 1-10, and add new claims 11-15 as follows.

1. (Amended) Device for processing flesh, essentially including at least one transport means (3), at least one element (11) for position detection, [as well as] at least one separating means (12) and at least one regulating and/or control device (22), [wherein the separating means communicates by means of the regulating and/or control device with the element for position detection] characterized in that the element for position detection (11), which communicates with separating means (12) by the regulating and/or control device (22), is designed in such a way that information can be recorded and processed into data of at least two kinds, so

that separating cuts and/or trimming cuts can be made with the separating means (12).

2. (Amended) Device according to claim 1, [characterised] characterized in that the [separating means is arranged essentially freely slidably in the space in order to perform precise cuts] element for position detection (11) is designed for recording information as well as for generating and processing it into geometrical data and/or image data.

3. (Amended) Device according to claim 1 [or 2], [characterised] characterized in that the separating means [comprises at least one circular blade] (12) is controllable for the removal of areas of different consistency.

4. (Amended) Device for processing flesh, in particular according to claim 1, [including at least one transport means, at least one element for position detection as well as at least one means for removing areas of different consistency and at least one regulating and/or control device, wherein the means for removing areas of different consistency communicates by means of the regulating and/or control device with the element for position detection].

5. (Amended) Device in particular according to [the preceding] claim 4, [characterised] characterized in that the [means for removing areas of different consistency comprises at least two essentially parallel, spaced-apart circular blades] shading element (9) is arranged between the transmitter (7) and the receiver (8).

6. (Amended) Device [in particular for processing flesh] according to claim 5, [including an element for position detection, wherein this element for position detection comprises at least one transmitter and at least one receiver] characterized in that the separating means (12) is arranged essentially freely slidably in the space in order to make precise cuts.

7. (Amended) Device according to claim 6, [characterised] characterized in that the [transmitter is a light source and the receiver is an optoelectronic system] separating means (12) comprises at least one circular blade.

8. (Amended) Device according to claim 7, [characterised] characterized in that [between transmitter and receiver is arranged at least one shading element] the separating means (12) comprises at least one essentially parallel, spaced-apart circular blade (13), wherein the cutting plane of the at least one circular blade (13) lies essentially perpendicularly to the conveying plane.

9. (Amended) Device according to [one or more of the above] claim[s] 8, characterized in that the separating means [is arranged essentially parallel to the transport means] (12) comprises at least one additional blade (21) whose cutting plane selectively lies essentially parallel or essentially perpendicularly to the conveying plane.

10. (Amended) [Method for processing fish] Device according to claim 9, [characterised] characterized in that [a device according to one or more of the above claims is used] the transmitter (7) is a light source and the receiver (8) is an optoelectronic system.

--11. Device according to claim 10, characterized in that the receiver (8) is a camera.--

--12. Method for processing flesh, including the following steps:

transport of the flesh by a transport means (3) into the processing region of a device for processing flesh, in particular according to claim 11,

detection of the position and/or properties of the flesh by means of an element (11) for position detection by recording information and processing it into data of two kinds,

driving separating means (12) with a regulating and/or control device (22) and performing separating cuts and/or trimming cuts with the aid of the detected data according to a preselected processing program.--

--13. Method according to claim 12, characterized in that the element (11) for position detection processes the recorded information into geometrical data and/or image data and accordingly via the regulating and control means (22) controls the separating means (12) to perform separating cuts and/or trimming cuts.--


--14. Method according to claim 12, characterized in that images are recorded by means of a camera.--

--15. Method according to claim 12, characterized in that several complete images of the flesh to be processed are recorded, preferably 25 images per minute, and image details and/or complete images are stored and later processed for control of the separating means (12).--

REMARKS

Examination is requested.

Respectfully submitted,

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Device and method respectively for processing flesh

The invention concerns a device or a method for processing flesh such as e.g. fish. Such a method or such a device is known, for example from US 4557019. In this an automatic fish fillet cutting device together with associated method is disclosed, producing portions with a predetermined weight. Here it is a drawback that determination of the density of the fish fillet necessitates several manual working steps. Another drawback results from the fact that cutting of the fillet pieces is effected transversely to the direction of conveying.

It is the object of the present invention to provide a device or a method which enable automated reliable and flexible processing of fish.

The object is achieved according to the invention by the fact that a device for processing flesh is provided, including at least one transport means, at least one element for position detection as well as at least one separating means and at least one regulating and/or control device, wherein the separating means communicates by means of the regulating and/or control device with the element for position detection. A development according to the invention provides that the separating means is arranged essentially freely slidably in the space in order to perform precise cuts.

In another development according to the invention it is provided that the separating means comprises at least one circular blade.

Further it can be provided according to the invention that a device for processing flesh is provided, including at least one transport means, at least one element for position detection as well as at least one means for removing areas of different consistency and at least one regulating and/or control device, wherein the means for removing areas of different consistency communicates by means of the regulating and/or control device with the element for position detection.

A development according to the invention provides that the means for removing areas of different consistency comprises at least two precisely spaced-apart circular blades.

In another development according to the invention it is provided that the device includes an element for position detection, wherein this element for position detection comprises at least one transmitter and at least one receiver.

The device for processing 1 includes, as shown in Figure 1, a housing 2, a transport means 3, wherein the transport means 3 has a perforated conveyor belt 4. In the processing region of the device 1 is located a suction box 5 which draws in the fillets lying on the perforated conveyor belt 4 during mechanical processing through the holes in the conveyor belt 4. The suction box 5 is connected by means of a suction pipe 19 to the vacuum pump 6, the vacuum pump 6 ensuring the required partial pressure. The device has an element for position detection 11 (Fig. 2) which has two transmitters 7, which in this embodiment are designed as a light source. Furthermore for the light sources 7 there is a corresponding receiver 8 which is here constructed as an electronic camera. To provide areas of different illumination, between light source 7 and projection surface is arranged a shading element 9 which produces on the conveyor belt 4 a shadow region and an illuminated region. The electronic camera 8 is connected by signal wires 18 to the image computer 10. In the processing region

above the suction box 5 are located separating means 12 including two essentially parallel, spaced-apart circular blades 13 arranged essentially vertically or within an angular range from 45° to 90° to the conveyor belt 4 and arranged essentially in the direction of conveying as well as a horizontal blade 21 which is arranged essentially transversely to the direction of conveying of the conveyor belt 4. In an alternative embodiment the spaced-apart separating means 12 can also be arranged obliquely to each other. Following and essentially below the conveyor belt 4 is located a skinning device 14 known in the art, as shown for example in JP 1202134 or SE 170906. Further, such skinning devices are known as Baader 52, wherein in the embodiment shown here the subsequent skinning refers only to fillets without a pinbone strip and/or ventral flank. By means of the stepping motor 15, the circular blades 13 and the horizontal blade 21 are controlled essentially in a plane parallel to the conveyor belt 4 as a function of the signals transmitted via control wires 18 to the stepping motor.

The speed pick-up or clock signal generator 16 is coupled to the conveyor belt drive motor 23 and delivers the information on movement of the transport means 3 or its conveyor belt 4 via the signal wires 18 to the image computer 10 and to the regulating/control device 22. The blades 13, 21 described above are driven by means of flexible shafts which are coupled by a reduction gear for flexible shafts 25 to the blade drive motor 17, wherein the blade drive motor operates at constant speed. In an alternative embodiment the blade drive motor communicates via signal wires 18 with the regulating/control device. The control/signal wires 18 connect all functional elements of the device 1 to the regulating/control device 22, so that essentially the blades 13 and 21, taking into account the individual position of the fillets on the conveyor belt 4 after image evaluation followed by computer analysis of the pinbones and e.g. the ventral flank of the fish fillets, are controlled in such a way that the pinbone strip is separated out from the fillet without skin by the essentially parallel, spaced-apart circular blades 13, and the ventral flank is separated out by the horizontal blade 21. The drive mechanism of the horizontal blade 20 ensures, together with the horizontal blade pivot device 28, that the horizontal blade 21 swings in, the moment the perforated conveyor belt conveys the ventral flank of the fish fillet into the radius of action of the horizontal blade 21. The blade pivot device 28 operates in this embodiment pneumatically, and receives the pivot signal from the control device 22 at

the appropriate moment by means of the signal wires 18, and moves the blade 21 into a plane parallel to the conveyor belt 4 or to the fish fillet in order to separate the ventral flank essentially from the skin of the fillet. Analogously, the pair of circular blades 13 are lowered into the fillet the moment the control device 22 signals impingement of the pinbone strip to the circular blade lifting/lowering device 24 by means of the signal wires 18, in such a way that only the pinbone strip is separated from the skin of the fillet by means of a chisel which is arranged between the blades 13, and for this eventuality the blade 21 remains in the waiting position (outside the cutting region). By means of the stepping motor 26, which can be seen in Figure 5, the common blade support 27 on which both the circular blades 13 and the horizontal blade 21 are arranged is brought into the position determined by the control unit. The suction box 5, which is supplied with partial pressure by means of suction pipe 19 and vacuum pump 6, always needs essentially the optimum suction power when a fillet passes into its input region. For this reason, in the suction pipe 19 is arranged a control valve 29 which, at the moment signalled by the control unit 22 via the signal wires 18, exposes the full cross-section of the suction pipe 19. After the fillet has passed through the processing stations described, it is transported away out of the range of action of the device 1 by the skinner 14 with the transport means 30, for further processing.

The transport system generates at precise intervals of for example 20 mm, by means of a clock signal generator 16, a clock signal which passes via a control/signal wire 18 to the regulating/control device 22, as shown e.g. in Figure 1.

The video images of the electronic camera 8 are detected by the image computer for example at 25 images per second. The images are first stored temporarily in a precise memory area of the image computer 10.

When the clock signal comes from the clock signal generator 16 of the transport system, an evaluation is made of the last image recorded and stored. The transition line to a shaded region 31 which is formed by the shading element 9 in connection with the light source 7 is examined. Here it is relevant whether it is a question of a straight shadow line 33 or a deflected shadow line 34, that is, a so-called contour line, as shown in Figure 3b. Due to projection of a straight edge, a projected shadow line occurs at a precise region on the conveyor belt 4. Shading is effected by the plate 9 which is mounted in the lighting chamber in such a way that it does not lie

in the field of recording or vision of the camera, wherein the field of vision of the camera is composed of the shaded region 31 and the illuminated image region 32, which can be seen in Figure 1. The shaded region 31 produced by the shading element 9 lies in the field of vision of the camera. On account of the angle between the light source and the camera, the shadow line in the camera image varies with respect to location and form when an object lies on the conveyor belt. If therefore there is deformation, the presence of a fillet on the conveyor belt is deduced.

If there is no fillet present, the current image in the memory of the image computer 10 is erased. But if there is a fillet present, a copy of the shadow line is filed in another memory area of the image computer, as shown in Figure 2a. Therefore a topology map of the fillet is built up each time at the predetermined transport intervals. As soon as a fillet has been completely transported out of the shadow region, if there is a straight shadow line again after the deformations of the shadow line, a complete copy of the current camera image is stored in another memory area of the image computer 10, as can be seen in Figure 2c. Immediately afterwards, image analysis is commenced on the copied image.

Each individual contour line 34 is analysed with the aid of so-called curve discussion, which as a result allows a statement about the contour shape of the area under analysis. In the location which is directly in the region to be analysed and in which the height is equal to zero, lies the outer boundary of the fish fillet. If these zero points are now joined e.g. by mathematical methods such as spline interpolation or the like methods, the result is a computer-generated outer contour which in combination e.g. with the detected contour shape allows a statement about the volume of the product presented. By multiplication by the relative density of the product, therefore, a statement about the weight of each individual product is possible.

First the recorded topology map is brought into register with the copied image. In a first step the topology reproduces the outer boundary of the fillet - its contour.

Next the contour is related to that of a representative fillet (standard fillet) stored in the image computer. This standard fillet contains information on morphological peculiarities of a given species, e.g. where the so-called pinbones are located. This can be illustrated in such a way that the standard fillet is pulled like a rubber skin into the contour of the fillet to be examined. In the process the external shape of the standard fillet can be distorted, but the basic proportions are preserved. In

particular the position to be expected of the pinbone strip is therefore already clearly confined.

In the confined region of the position to be expected of the pinbone strip, a further analysis of the topology map is made. For each individual shadow line 34 the point which on account of the contour shape is located on the desired pinbone line is computer analysed, and there is differential comparison of the actual contour line with a mathematical curve.

The pinbone points thus derived from the contour lines are combined by a polynomial approximation into a smoothed line. This line is widened by a given tolerance, so that there is now further confinement of the possible pinbone line position 34, as can be seen from Figure 3.

Within the given tolerance range, an analysis of the copied image is then made. With a mathematical filter function, in the halftones of the image a kind of trench structure is sought (lighter picture points merge with darker ones and then again with lighter ones). Here, use is made of the fact that the fat and cartilage strip in which the pinbones are embedded can be seen in the halftone image as a darker line. The points within the tolerance range which exhibit this trench structure are utilised as pinbone points.

The number of points found is again smoothed by a polynomial approximation and the polynomial parameters are transmitted via a RS 232 data link from the image computer 10 to the regulating/control device 22 which controls the stepping motors for the pinbone cut or ventral flank cut.

An improvement in visibility of the fat line is made in an alternative embodiment by means of lighting properties and optical glass filters. As the fat lines 38 which can be seen in Fig. 3 are reddish or brownish, an increase in contrast can be obtained with blue light. The possible pinbone position 39 is also shown in Fig. 3. The use of blue glass filters for the unshaded image region 32 is provided in combination with red glass filters for the shaded region 31. In a further alternative embodiment it is provided, as shown in Figure 4, that several paths, e.g. two of them, are arranged adjacent to each other in order thus to process simultaneously the two fish halves arising for each fish.

In an alternative embodiment there is provision for the use of a camera to determine the contour lines and the use of a further camera to determine the halftone

images, the two cameras cooperating in the manner already described with the device or its image computer 10.

The horizontal blade 21 shown in Figure 5 has at the circumference an essentially blunt edge 36 which is not designed as a cutting edge. The actual cutting edges 35 are concealed in the sawtooth-like structure of the blade.

An alternative embodiment of the horizontal blade 21 shown in Figure 6a, b has on its lower side or on the side facing towards the fish skin two undercuts 37 which seem suitable for receiving in compensated fashion any cut remains arising as well as fish fillet which is added, in order not to hinder the cut in itself.

In Figure 7 are shown the different cutting variants which can be obtained with the device according to the invention. First there is the so-called pinbone cut, which is produced with circular blades 13 from Figure 1 from the fillets presented, after the element for position detection 11 in cooperation with the image computer 10 and the regulating/control device 22 has determined the position of the pinbones and transmitted it to the circular blades 13 via stepping motors 15, 26 as a cutting signal.

In the so-called ventral flank cut, in addition the horizontal blade 21 cuts off a piece from the ventral flank. The following cutting variants such as loin/tail cut and trim cut are in each case variants of the types of cut described above.

In a further embodiment according to Figure 8, skinning takes place already before actual processing.

In Figure 1 the fillet is produced after processing with a skinner 14. In the variant shown in Figure 8 the preliminary skinning takes place in the device which is also referred to as a BA 53. Of this arrangement it is promised that the cuts can be made even more precisely.

With the device according to the invention there is therefore the possibility of making both pinbone cuts and loin/tail cuts or trim cuts or ventral flank cuts. Further it is possible to detect pectoral fins, walking sticks, black ventral skin and/or blood spots. The separated residual pieces such as pinbone pieces or ventral flank are conveyed separately out of the machine, so that in this way they are available for subsequent further processing.

Reference numbers

- 1 device for processing fish
- 2 housing
- 3 transport means
- 4 perforated conveyor belt
- 5 suction box
- 6 vacuum pump
- 7 transmitter (light source)
- 8 receiver (electronic camera)
- 9 shading element
- 10 image computer
- 11 element for position detection
- 12 separating means
- 13 circular blade
- 14 skinner
- 15 stepping motor
- 16 speed pick-up / clock signal generator
- 17 blade drive motor
- 18 control/signal wires
- 19 suction pipe
- 20 drive mechanism of horizontal blade
- 21 horizontal blade
- 22 regulating/control device
- 23 conveyor belt drive motor
- 24 circular blade lifting/lowering device
- 25 reduction gear for flexible shaft
- 26 stepping motor
- 27 common blade support
- 28 blade pivot device
- 29 control valve
- 30 transport means
- 31 shaded region

- 32 illuminated image region
- 33 straight shadow line
- 34 deflected shadow line
- 35 cutting edge
- 36 blunt edge
- 37 undercut
- 38 fat line
- 39 possible pinbone position

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Claims

1. Device for processing flesh, including at least one transport means, at least one element for position detection as well as at least one separating means and at least one regulating and/or control device, wherein the separating means communicates by means of the regulating and/or control device with the element for position detection.
2. Device according to claim 1, characterised in that the separating means is arranged essentially freely slidably in the space in order to perform precise cuts.
3. Device according to claim 1 or 2, characterised in that the separating means comprises at least one circular blade.
4. Device for processing flesh, in particular according to claim 1, including at least one transport means, at least one element for position detection as well as at least one means for removing areas of different consistency and at least one regulating and/or control device, wherein the means for removing areas of different consistency communicates by means of the regulating and/or control device with the element for position detection.
5. Device in particular according to the preceding claim, characterised in that the means for removing areas of different consistency comprises at least two essentially parallel, spaced-apart circular blades.
6. Device in particular for processing flesh, including an element for position detection, wherein this element for position detection comprises at least one transmitter and at least one receiver.
7. Device according to claim 6, characterised in that the transmitter is a light source and the receiver is an optoelectronic system.
8. Device according to claim 7, characterised in that between transmitter and receiver is arranged at least one shading element.

9. Device according to one or more of the above claims, characterised in that the separating means is arranged essentially parallel to the transport means.

10. Method for processing fish, characterised in that a device according to one or more of the above claims is used.

Abstract

Device for processing flesh, including at least one transport means, at least one element for position detection as well as at least one separating means and at least one regulating and/or control device, wherein the separating means communicates by means of the regulating and/or control device with the element for position detection.

4.06.40.64.60

FIG. 1

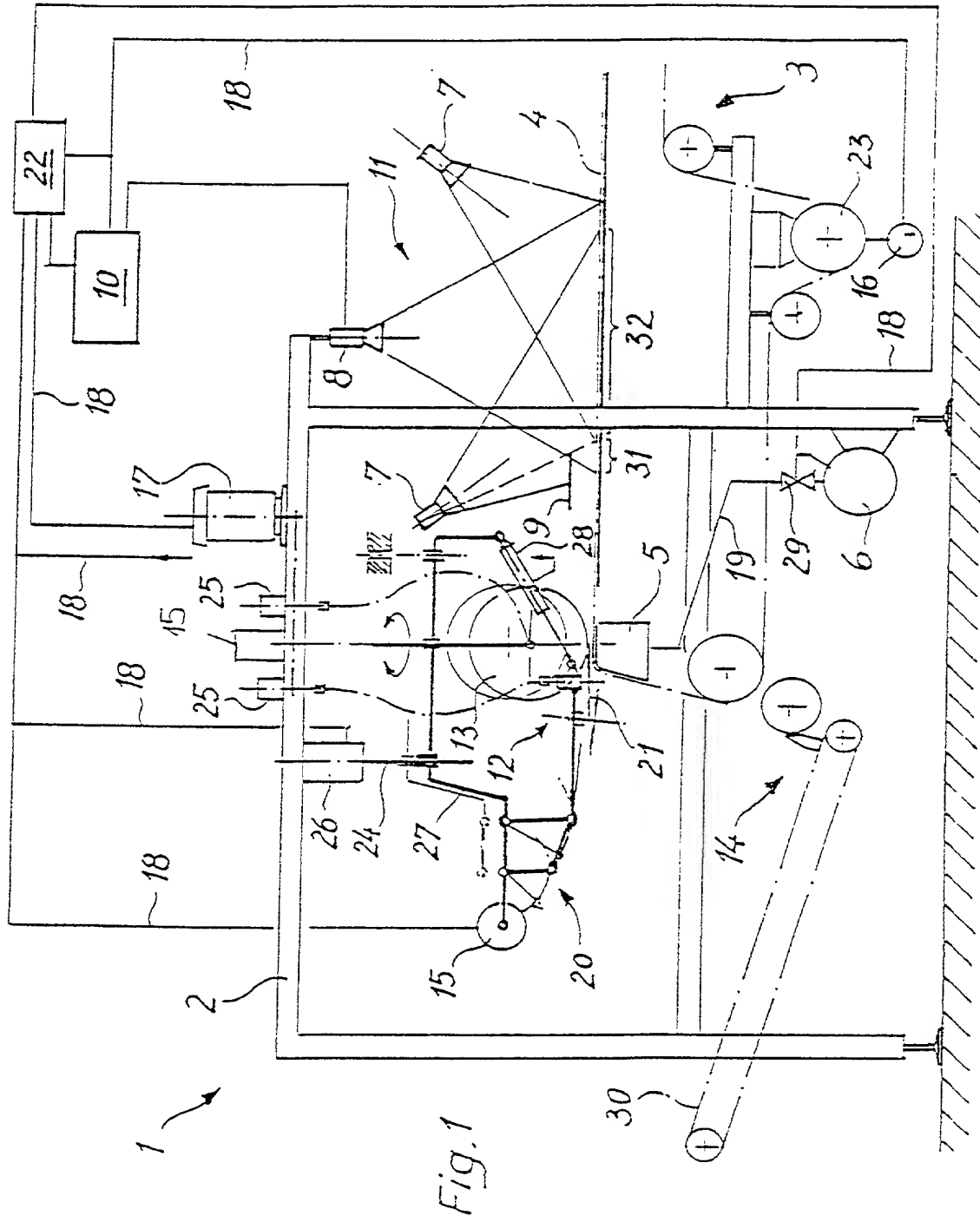


Fig. 2a

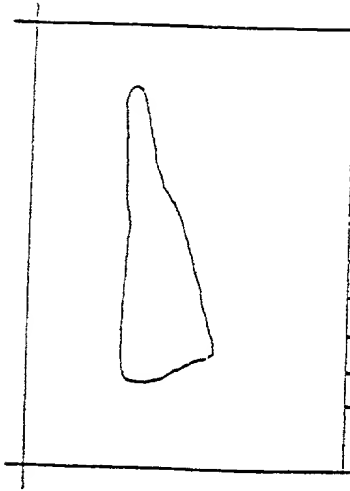


Fig. 2b

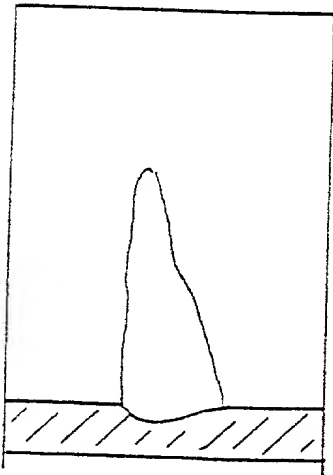
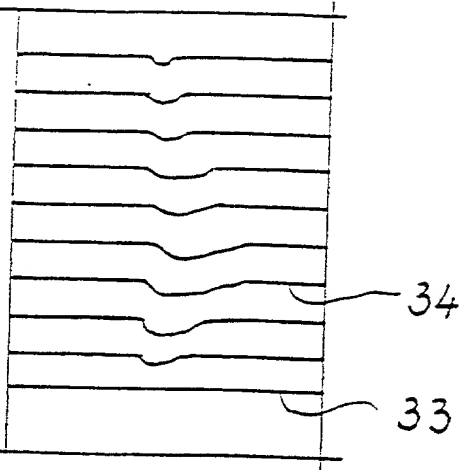
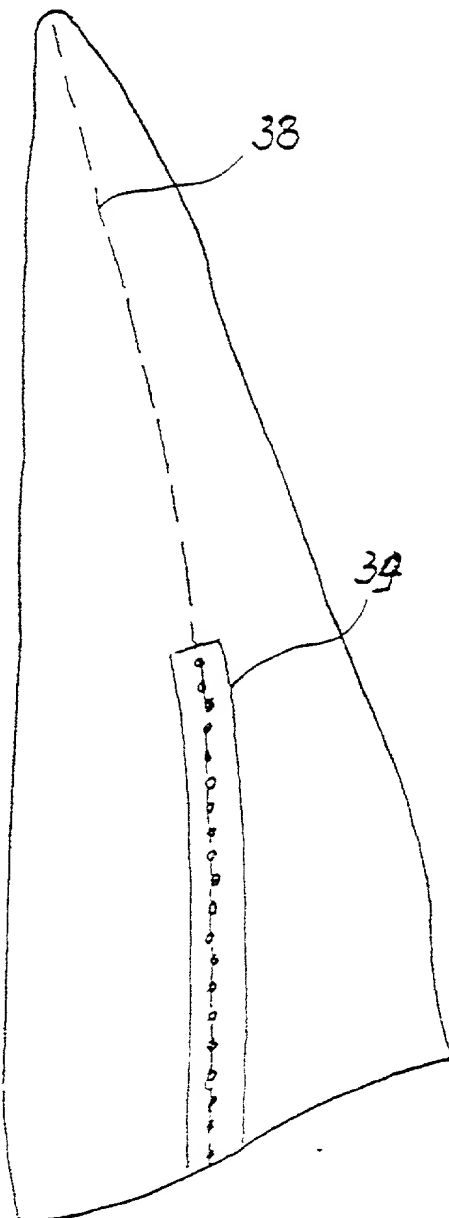


Fig. 2c

Fig. 3



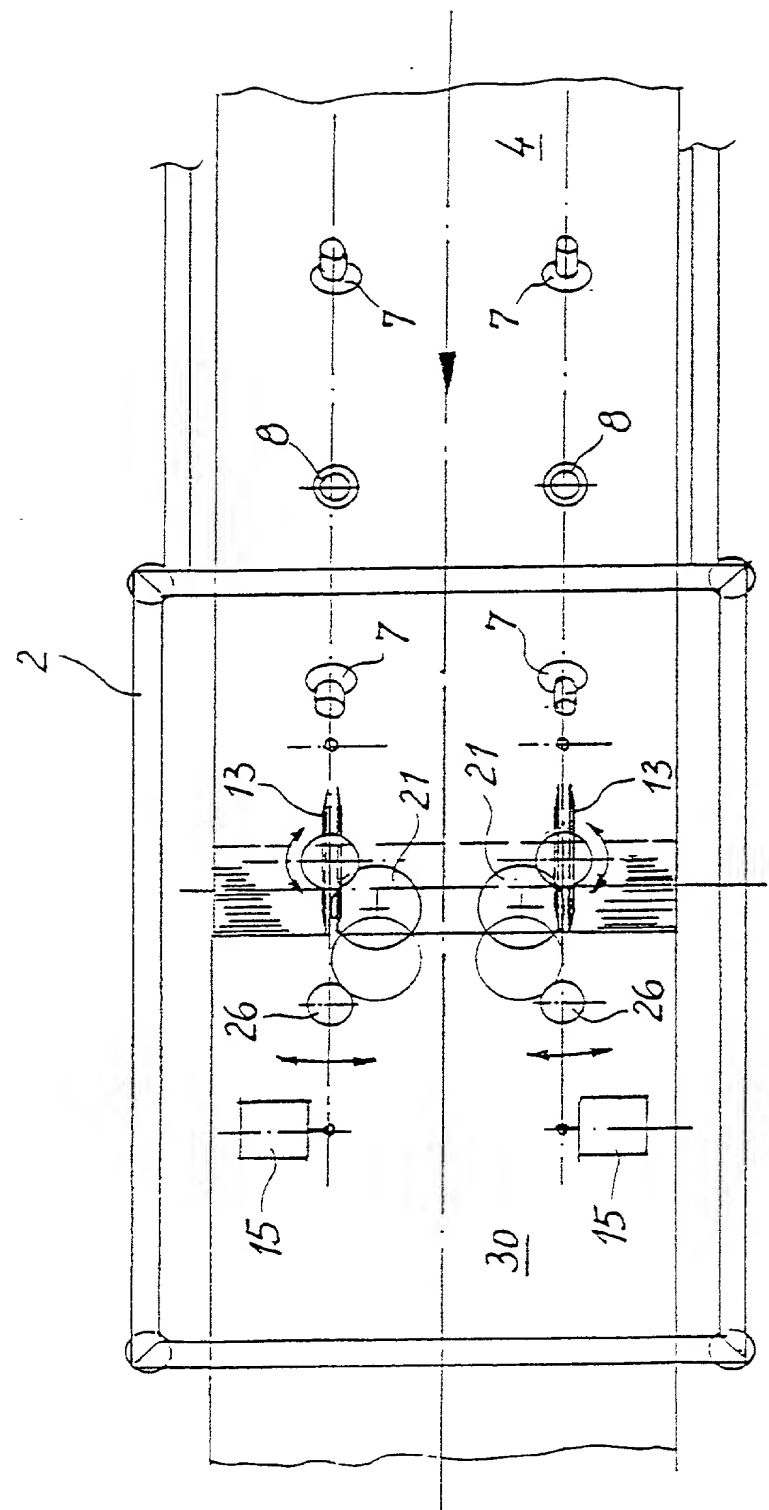


Fig. 4

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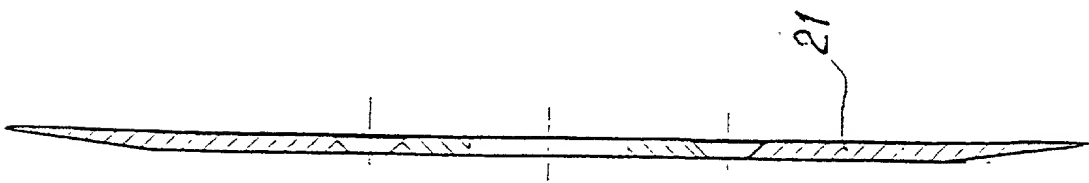
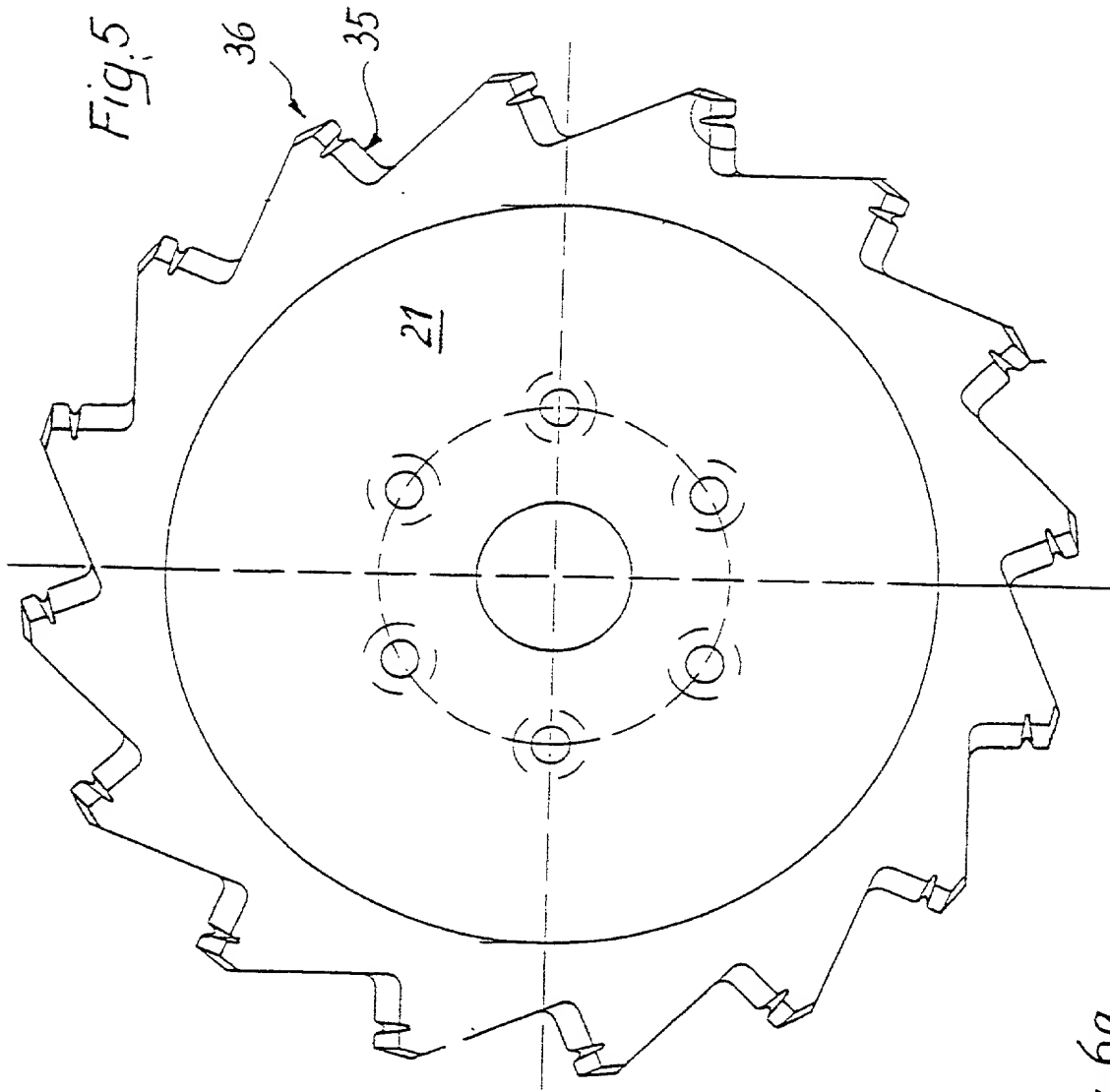
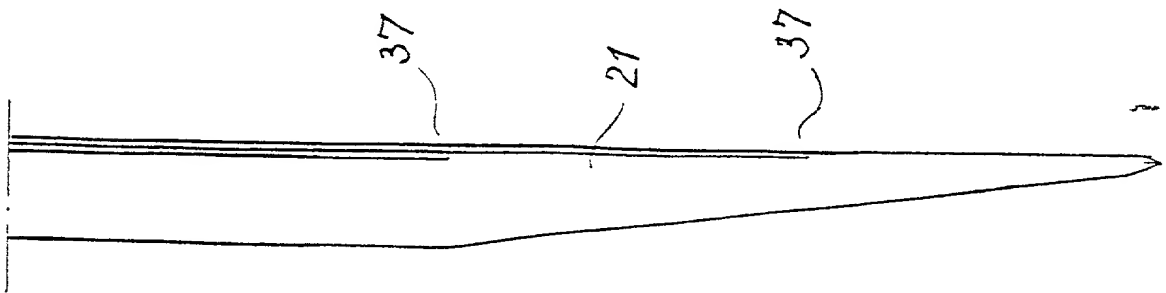


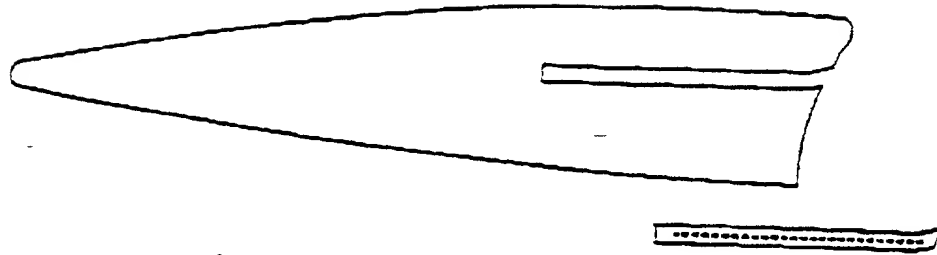
Fig. 6b



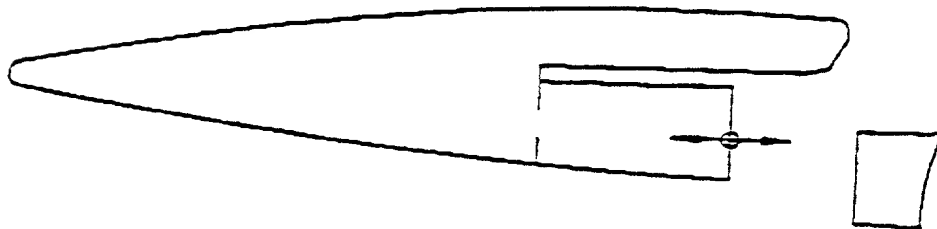
BA 388 Cutting variants

Stand 14.07.1999

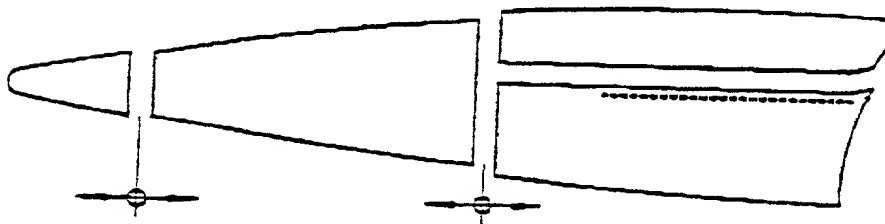
I. Pinbone cut



II. Ventral flank cut



III. Loin/tail cut



IV. Trim cut

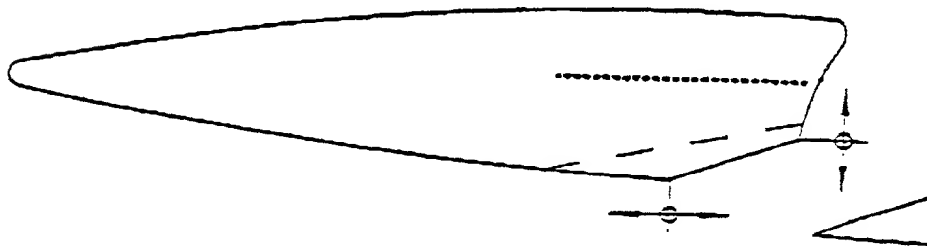


Fig. 7

BA 388

Processing Centre

Start/original product:
Standard fillet without
skin, stretched

Separate issuing
of the final
product

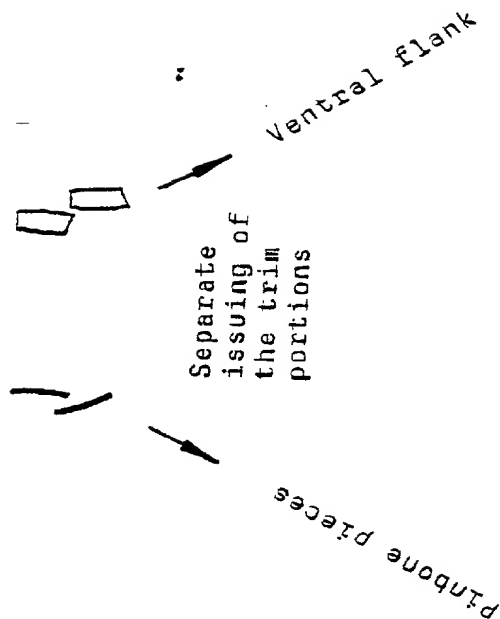
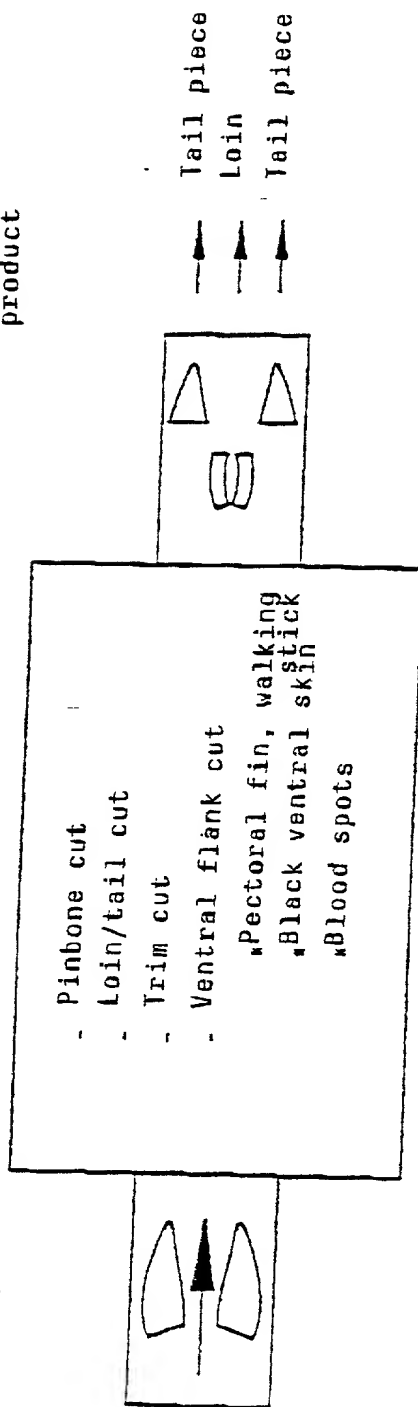


Fig. 8

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated next to my name. I believe I am the original, first and sole inventor (if only one name is listed below), or an original, first and joint inventor (if plural names are listed below), of the subject matter claimed and for which a patent is sought on the invention entitled:

Device and Method Respectively for Processing Flesh



The specification of which: (check one) ☐ is attached hereto.

☒ was filed on 25 January 2001

as Application Serial No. 09/744519

and was amended on _____
(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information material to examination of this application according to Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>PCT/EP99/05283 (W000/07452)</u>	<u>23.07.1999</u>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
(Number) (Country)	(Day/Month/Year Filed)	Yes No	
<u>19834524.0-23</u>	<u>Germany</u>	<u>31.07.1998</u>	<input checked="" type="checkbox"/> <input type="checkbox"/>
(Number) (Country)	(Day/Month/Year Filed)	Yes No	
_____	_____	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
(Number) (Country)	(Day/Month/Year Filed)	Yes No	

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below.

(Application Number) (Filing Date) (Status -- patented, pending, abandoned)

(Application Number) (Filing Date) (Status -- patented, pending, abandoned)

I hereby claim the benefit under Title 35, United States Code, Section 120, of any United States application(s) or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby appoint the following attorneys/agents to prosecute this application and transact all business in the Patent and Trademark Office connected therewith and with any divisional, continuation, continuation-in-part, reissue or re-examination application with full power of appointment and substitution of associate attorneys and agents, and to receive all patents which may issue thereon: John R. Mattingly, Reg. No. 30,293; Daniel J. Stanger, Reg. No. 32,846; Shrinath Malur, Reg. No. 34,663; Gene W. Stockman, Reg. No. 21,021; Jeffrey M. Ketchum, Reg. No. 31,174; Scott W. Brickner, Reg. No. 34,553. Address all correspondence to:

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Alexandria, Virginia 22301
Tel. 703-684-1120

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Title 18, United States Code, Section 1001, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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